

WE CLAIM:

1 ^{SUB}
2 ^{A5} 1. A tire comprising a crown, two sidewalls and two beads, a carcass
3 reinforcement anchored in the two beads and a belt reinforcement, said belt
4 reinforcement comprising at least two superposed reinforcing plies formed by cords
5 parallel in each ply and criss-crossed from one ply to the other by forming angles (α , β)
6 with the circumferential direction ranging between 10° and 70° , characterized in that,
7 between said two superposed reinforcing plies, at least two rubber decoupling layers of
8 different mechanical properties are placed axially adjacent, and in that each of said two
9 rubber decoupling layers is in contact with the cords of said two superposed reinforcing
10 plies.

1 ^{SUB}
2 ^{B7} 2. A tire comprising a crown, two sidewalls and two beads, a carcass
3 reinforcement anchored in the two beads and a belt reinforcement, said carcass
4 reinforcement comprising at least one reinforcing ply made up of parallel cords forming
5 an angles roughly equal to 90° with the circumferential direction and said belt
6 reinforcement comprising at least one reinforcing ply made up of parallel cords forming
7 angles α with the circumferential direction ranging between 10° and 70° , characterized in
8 that, between said crown reinforcing ply and said carcass reinforcing ply, at least two
9 rubber decoupling layers of different mechanical properties are placed axially adjacent,
10 and in that each of said two rubber decoupling layers is in contact with the cords of said
two superposed reinforcing plies.

1 *Sub*
2 *BL* 3. A tire according to Claim 2, in which the belt reinforcement
3 consists of a reinforcing ply made up of parallel wires forming an angle α with the
4 circumferential direction ranging between 10° and 70° and of a reinforcing ply made up
of parallel cords oriented roughly circumferentially.

1 4. A tire according to one of Claims 1 to 3, in which each rubber
2 decoupling layer is made by a spiral winding of a rubbery compound section directly on
3 the cords of the radially inner reinforcing ply.

1 *Sub*
2 *al* 5. A tire according to one of Claims 1 or 2, in which a first
3 decoupling layer is placed between the center part of the said two superposed reinforcing
4 plies, and in which a second decoupling layer is placed on at least one side of the first
5 layer and extends at least as far as the corresponding lateral ends of the said two
superposed reinforcing plies.

1 6. A tire according to Claim 5, in which the ratio between the moduli
2 of elasticity of the second rubber decoupling layer and the first layer ranges between
3 0.05 and 0.8.

1 7. A tire according to Claim 5, in which the ratio between the moduli
2 of elasticity of the second rubber decoupling layer and the first layer ranges between
3 0.5 and 0.7.

1 8. A tire according to Claim 5, in which the second rubber decoupling
2 layer has a damping ratio $\tan \delta$ less than that of the first layer.

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9. A tire according to Claim 8, in which the second rubber decoupling layer has a damping ratio $\tan \delta$ below 0.08.

10. A tire according to Claim 5, in which the belt reinforcement comprises, on the same side as the said second rubber decoupling layer, an additional reinforcing ply of cords oriented in the circumferential direction and extending axially like the said second rubber decoupling layer.

11. A tire according to Claim 10, in which the said additional reinforcing ply is placed radially outside the two superposed reinforcing plies.

12. A tire according to Claim 10, in which the said additional reinforcing ply is placed radially inside the two superposed reinforcing plies.

13. A tire according to Claim 10, in which the said additional reinforcing ply is placed radially between the said two superposed reinforcing plies.

14. A tire according to Claim 5, in which the H/W aspect ratio is greater than 0.55.

15. A tire according to Claim 5, in which the ratio between the moduli of elasticity of the second rubber decoupling layer and the first layer ranges between 1.2 and 20.

1 16. A tire according to Claim 5, in which the ratio between the moduli
2 of elasticity of the second rubber decoupling layer and the first layer ranges between
3 1.5 and 10.

1 17. A tire according to Claim 15, in which the first rubber decoupling
2 layer has a damping ratio $\tan \delta$ below that of the second layer.

1 18. A tire according to Claim 17, in which the first rubber decoupling
2 layer has a damping ratio $\tan \delta$ below 0.08.

1 19. A tire according to Claim 15, in which the H/W aspect ratio is less
2 than 0.55.

1 20. A tire according to Claim 5, in which the zone of contact between
2 the cords of the crown reinforcing ply whose axial width is smallest and the second
3 rubber decoupling layer is axially greater than 5 mm.

1 21. A tire according to Claim 5, in which the zone of contact between
2 the cords of the crown reinforcing ply whose axial width is smallest and the second
3 rubber decoupling layer ranges axially between 20 mm and 1/3 the axial width of the said
4 crown reinforcing ply.

1 22. A tire according to Claim 5, in which the said second layers extend
2 axially more than 3 mm beyond the lateral ends of the cords of said crown reinforcing

3 plies.

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